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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,904

12/10/2004

Jianhua Feng

1-32526A/FMI

4693

1095

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07/09/2008

NOVARTIS
CORPORATE INTELLECTUAL PROPERTY
ONE HEALTH PLAZA 104/3
EAST HANOVER, NJ 07936-1080

EXAMINER

MACAULEY, SHERIDAN R

ART UNIT

PAPER NUMBER

1651

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,904	Applicant(s) FENG ET AL.	
	Examiner SHERIDAN R. MACAULEY	Art Unit 1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7,8 and 10-22 is/are pending in the application.
- 4a) Of the above claim(s) 10-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A response and amendment were received and entered on March 4, 2008. All evidence and arguments have been fully considered. Claims 2, 6 and 9 have been cancelled. Claims 1, 3-5, 7, 8 and 10-22 are pending. Claims 10-22 have been withdrawn due to a prior requirement for restriction. Claims 1, 3-5, 7 and 8 are examined on the merits in this office action.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1 and 3-5 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The phrase "which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa" also renders claims 1 and 5 indefinite because it is unclear whether applicant is claiming that the composition comprises a protein which has (a) PKB Ser 473 kinase activity and an apparent molecular weight of 450-650 when it is associated with cellular proteins; or (b) PKB Ser 473 kinase activity when associated with cellular proteins, and an apparent molecular weight of 450-650 kDa.
4. Claims 2-4 are rejected insofar as they depend from claim 1 and do not provide further clarity.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-5, 7 and 9 stand rejected under 35 U.S.C. 102(b) as anticipated by Matsuzaki (FEBS Letters, 1996, 305-8) in view of Toker et al. (J. Biol. Chem., 2000, 275:8271-4). Claim 1 recites a composition comprising PKB Ser473 kinase, which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa. Claim 3 recites the composition of claim 1, wherein said composition comprises a protein having a molecular weight of 48 kDa as estimated by SDS gel electrophoresis. Claim 4 recites the composition of claim 3, wherein said composition comprises a protein having a molecular weight of 58 kDa as estimated by SDS gel electrophoresis. Claim 5 recites the purified PKB Ser 473 kinase protein, which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa when fractionated by gel filtration chromatography. Claim 7 recites a purified cell extract that has measurable PKB Ser 473 kinase activity in 0.2 micrograms of protein when detected in a kinase assay in which a PKB peptide substrate is phosphorylated with ³²P labelled phosphate, wherein the kinase elutes with an apparent molecular weight of 450-650 kDa when fractionated

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by gel filtration chromatography. Claim 8 recites the purified cell extract of claim 7, wherein the kinase elutes with an apparent molecular weight of 550 kDa when fractionated by gel filtration chromatography.

7. Matsuzaki teaches a purified RAC-protein kinase (PKB/Akt; abstract). The PBK/Akt (i.e. Akt/Protein Kinase B) has PKB Ser 473 kinase activity when associated with cellular proteins, as evidenced by Toker (abstract). The kinase taught by Matsuzaki has a molecular weight of about 58 kDa (p. 307, fig. 2). Matsuzaki therefore anticipates the composition of the cited claims.

8. The claimed functions, characteristics, and/or traits must be inherent to the reference composition. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new. Thus the claiming of a new use, functions or unknown property that is inherently present in the prior art does not necessarily make the claim patentable (See MPEP 2112). In this case, the prior art does not disclose how the purity of the claimed composition compares to that of a crude extract of HEK 293 cells, the apparent molecular weight of the protein, particularly when fractionated by gel filtration chromatography when associated with cellular proteins, the activity in 0.2 micrograms of protein, or the presence of an additional protein of the claimed molecular weight. The burden is thus shifted to the applicant to provide evidence establishing an unobvious difference between the claimed composition and the prior art composition.

9. Therefore, Matsuzaki, in view of Toker, anticipates all of the limitations of the cited claims.

Claim Rejections - 35 USC § 102/103

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1, 3-5, 7 and 9 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dedhar (US 6,338,958). Claim 1 recites a composition comprising PKB Ser473 kinase, which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa. Claim 3 recites the composition of claim 1, wherein said composition comprises a protein having a molecular weight of 48 kDa as estimated by SDS gel electrophoresis. Claim 4 recites the composition of claim 3, wherein said composition comprises a protein having a molecular weight of 58 kDa as estimated by SDS gel electrophoresis. Claim 5 recites the purified PKB Ser 473 kinase protein, which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa when fractionated by gel filtration chromatography. Claim 7 recites a purified cell extract that has measurable PKB Ser 473 kinase activity in 0.2 micrograms of protein when detected in a kinase assay in which a PKB peptide substrate is phosphorylated with ³²P labelled phosphate, wherein the kinase elutes with an apparent molecular weight of 450-650 kDa when fractionated by gel filtration chromatography. Claim 8 recites the purified cell extract of claim 7, wherein the kinase elutes with an apparent molecular weight of 550 kDa when fractionated by gel filtration chromatography.

14. Dedhar teaches a composition comprising a purified integrin-linked kinase (ILK) which has PKP Ser 473 kinase activity when associated with cellular proteins (col. 21-

22, example 2, col. 10, lines 43-54). Dedhar teaches that the purified ILK has a molecular weight of about 59 kDa (col. 21, line 65-col. 22, line 5). The composition of Dedhar had kinase activity in 0.2 micrograms of protein when detected in a kinase activity assay in which the peptides were labeled with ³²P. Dedhar therefore anticipates the invention of cited claims.

15. The claimed functions, characteristics, and/or traits must be inherent to the reference composition. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new. Thus the claiming of a new use, functions or unknown property that is inherently present in the prior art does not necessarily make the claim patentable (See MPEP 2112). In this case, the prior art does not disclose the apparent molecular weight of the protein, specifically when fractionated by gel filtration chromatography, in the composition when associated with cellular proteins, or the purity of the protein in the composition compared to a crude membrane extract of HEK 293 cells. The burden is thus shifted to the applicant to provide evidence establishing an unobvious difference between the claimed composition and the prior art composition.

16. If Dedhar does not anticipate the claimed invention, the motivation to develop the claimed invention is taught by Dedhar, who teaches that HEK 293 cells may be transfected with constructs comprising ILK (col. 41-42, example 13). Dedhar also teaches that proteins which are expressed in any expression system may be purified from a lysate using any way known in the art, including size exclusion chromatography, resulting in a purified protein which is up to 100% pure (col. 8, line 23- col. 9, line 16).

One would therefore have been motivated to purify an ILK expressed in an HEK 293 cell using the methods of instant application, thereby resulting in the claimed composition. One would have a reasonable expectation of success in arriving at the claimed composition because protein purification is well known in the art, as taught by Dedhar.

17. Therefore, Dedhar anticipates all of the limitations of the cited claims or, alternately, the cited claims are rendered obvious over the teachings of Dedhar.

Response to Arguments

18. Applicant's arguments filed March 4, 2008 have been fully considered but they are not persuasive. Applicant argues that the phrase "which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa" is sufficiently definite to define the metes and bounds of applicant's invention. Applicant argues that Matsuzaki does not anticipate the claimed invention because the composition of Matsuzaki does not possess the properties recited in the claims. Applicant also argues that Dedhar does not anticipate or render obvious the claims because the ILK of Dedhar has been shown to be a pseudokinase and its kinase activity is the result of impurities.

19. In response to applicant's argument that the phrase "which when associated with cellular proteins has a PKB Ser 473 kinase activity and has an apparent molecular weight of 450-650 kDa" is sufficiently definite to define the metes and bounds of applicant's invention, it is noted that it is unclear whether applicant is claiming that the

composition comprises a protein which has (a) PKB Ser 473 kinase activity and an apparent molecular weight of 450-650 kDa when it is associated with cellular proteins; or (b) PKB Ser 473 kinase activity when associated with cellular proteins, and an apparent molecular weight of 450-650 kDa. Applicant is advised that this matter should be clarified in a further amendment. It is suggested that, if applicant intends to claim that the kinase has an apparent molecular weight of 450-650 kDa when it is associated with cellular proteins, applicant amend the claims to clarify this, such as by changing the phrase to read "which when associated with cellular proteins has the following characteristics: PKB Ser 473 kinase activity when associated with cellular proteins and an apparent molecular weight of 450-650 kDa." Therefore, applicant's argument that the claims are sufficiently definite has not been found to be persuasive.

20. In response to applicant's argument that Matsuzaki does not anticipate the claimed invention because the composition of Matsuzaki does not possess the properties recited in the claims, It is noted that applicant pointed to the Hill et al. (J. Biol. Chem., 2001, 276:25643-6, document cited in IDS) as evidence of this assertion. Briefly, applicant argues that Hill provides evidence that the protein of Matsuzaki lacks the claimed properties and that the finding of the Toker reference (which has provided evidence demonstrating that the Matsuzaki composition inherently possesses the claimed characteristic) is incorrect. However, applicant has not provided enough evidence to support this assertion. The passage of the Hill reference applicant cites does not provide clear evidence supporting applicant's statements, such as that "the observation of Toker relies on an in vitro artifact." Furthermore, the evidence of the

prior art indicates that the composition of Matsuzaki does possess the claimed characteristics. Applicant's argument is therefore not found persuasive.

21. In response to applicant's argument that Dedhar does not anticipate or render obvious the claims because the ILK of Dedhar has been shown to be a pseudokinase and its kinase activity is the result of impurities, is noted that the instant claims do not recite that claimed characteristics are present within a single protein. The claims recite a composition wherein a protein possesses a claimed characteristic when associated with other cellular proteins. The instant claims also do not recite a purified composition. Thus, even if it is found that the specific protein present in the composition of Dedhar does not possess the claimed characteristics, Dedhar teaches a composition that possesses the characteristics recited in the claims. Applicant's argument is therefore not found to be persuasive.

22. Therefore, applicant's arguments have been fully considered, but they have not been found to be persuasive.

Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERIDAN R. MACAULEY whose telephone number is (571)270-3056. The examiner can normally be reached on Mon-Thurs, 7:30AM-5:00PM EST, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Leon B Lankford/
Primary Examiner, Art Unit 1651

SRM